

## Questions

1 What are the three components that make up a starter motor?

1 .....

2 .....

3 .....

2 Put the numbers below in their proper location in Figure 22.

3 When the starter motor is first activated, why does the armature first start to turn slowly?

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1

2

3

4

5

7 6

1 Driving direction

2 Butting edge

3 Coil spring

4 Roller

5 Freewheel ring

6 Pinion axis

7 Pinion

### **Fig. 21 Freewheel Clutch**

### **Fig. 22**

1 Activation coil

2 Engagement coil

3 Contact bridge

4 Field winding

5 Carbon brush

6 Collector

7 Armature

8 Pole shoe

9 Freewheel clutch

10 Pinion

11 Starter gear ring

12 Coupling lever

### **Starter Systems**

22

*Theory*

4 What is the role of the freewheel clutch?

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5 Look at Figure 23. The starter relay used:

A Is a circuit breaker relay

B Switches current on

C Has two activation coils

D Has an activation coil and a field coil

6 Look at Figure 23. During start-up:

A The current flowing through the activation coil is lower than the

current flowing through the holding coil

B The current flowing through the holding coil is greater than the

current flowing through the field coil

C The current flowing through the activation coil is equal to the current

flowing through the armature

D The current flowing through the activation coil is smaller than the

current flowing through the field coil

7 Look at Figure 23. There is a broken wire at A. This results in the following:

A The pinion is not inserted into the starter gear ring

B The start-up number of revolutions is halved

C The contact strip is not able to connect to the switch contacts

D The current flowing through the activation coil remains switched on after the pinion has been inserted into the starter gear ring

**Fig. 23**

A

Relay core